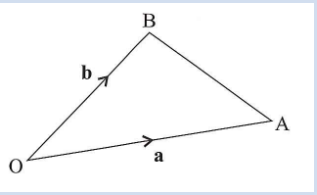
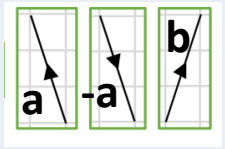
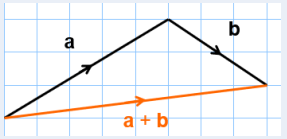
VECTORS

Keywords:	Vector / Magnitude / Parallel / Scalar					
Definition / Description:	**Vector:** a quantity with size and direction	**Magnitude:** The size of a vector (length)	**Parallel:** Two lines that never meet	**Scalar:** A quantity that has only magnitude		
Knowledge points:	Representing vectors: A vector can be represented using a line segment with an arrow. The MAGNITUDE of the vector is given by the length of the line. The direction of the vector is given by the arrow	Column Vectors: Are written in the form $\binom{x}{y}$ where x tells you how far to move left or right and y, how far to move up or down	Parallel vectors: Vectors that are multiples of one another. If one vector is parallel to another but a different size, they are SCALAR MULTIPLEs	Adding and subtracting vectors: Adding vectors is equivalent to applying one vector followed by the other	Multiplying vectors: A vector can be multiplied by a scalar to create a parallel vector	Vector geometry: 
Knowledge point examples:		$\begin{pmatrix}-9\\15\end{pmatrix}$ Move 9 places to the LEFT and 15 places UP	$\mathbf{a} = \binom{2}{4}$ $\mathbf{b} = \binom{-2}{-4}$ Vectors **a** and **b** are parallel and scalar multiples (multiple of -1) $\mathbf{c} = \binom{4}{8}$ $\mathbf{b} = \binom{3}{6}$ Vectors **c** and **d** are parallel and scalar multiples (multiple of -1)	$\mathbf{a} = \binom{5}{3}$ $\mathbf{b} = \binom{3}{-2}$ Find **a** + **b** $\mathbf{a} + \mathbf{b} = \binom{5+2}{3+-2}$ $= \binom{7}{1}$ 	$\mathbf{p} = \binom{2}{-3}$ $2\mathbf{p} = \begin{pmatrix}2\times2\\2\times-3\end{pmatrix} = \begin{pmatrix}4\\-6\end{pmatrix}$ $-\mathbf{p} = \begin{pmatrix}-1\times2\\-1\times-3\end{pmatrix} = \begin{pmatrix}-2\\3\end{pmatrix}$	a) $\overrightarrow{AO} = -\mathbf{a}$ b) $\overrightarrow{AB} = -\mathbf{a} + \mathbf{b}$ c) $\overrightarrow{BA} = -\mathbf{b} + \mathbf{a}$
Linked Knowledge Maps	Linear Graphs Transformations Angles Ratio 2D shapes					